REMOVAL PROGRAM PRELIMINARY ASSESSMENT/ SITE INVESTIGATION REPORT FOR THE JOHN J RILEY SITE WOBURN, MASSACHUSETTS

AUGUST 11, 2005

Prepared By:

U.S. Environmental Protection Agency
Region I
Emergency Planning and Response Branch
1 Congress Street, Suite 1100
Boston, MA 02114-2023

February 2006

TABLE OF CONTENTS

I. Preliminary Assessment Form

EPA REGION I
REMOVAL PRELIMINARY ASSESSMENT

Site Name and Location

Name: John J Riley Site **Location:** Salem Street
Town: Woburn **County:** Middlesex **State:** Massachusetts

Site Status: ( )NPL (X)NON-NPL ( )RCRA ( )TSCA
( )ACTIVE ( )ABANDONED ( )OTHER

( )Attached USGS Map of Location (X)Site I.D. No.: MAD001035872

Latitude: 42° 29' 26.1" North **Longitude:** 71° 07' 37.6" West

Referral

( )Citizen ( )City/Town ( )State (X)Preremedial
( )RCRA ( )Other:

Name of referring party: Nancy Smith **Telephone:** (617) 918-1436
Address: USEPA Region 1, 1 Congress Street, Suite 1100, Boston, MA 02114-2023

Contacts Identified

1) Joe Lemay, RPM **Telephone:** (617) 918-1323
2) **Telephone:** ( )

Source of Information

( ) **Verbal:**
(X) **Report:** *Expanded Trip Report*, prepared by Weston Solutions, Inc., 21 September 2004.
( ) **Other:**

Potential Responsible Parties

Owner: Organix, Inc. **Telephone:** (781) 932-4142
Address: 240 Salem Street, Woburn, MA 01801

REMOVAL PRELIMINARY ASSESSMENT

Site Access

Authorizing Person: Peter Meltzer, President, Organix, Inc.
Date: May 17, 2005 **(X)Obtained** **( )Verbal**
Telephone: (781) 932-4142 **( )Not Obtained** **(X)Written**

Physical Site Characterization

Background Information: The site is the location of the former Riley Company tannery, which operated at the site from 1915 to 1989. In 1994, the property was subdivided and redeveloped for commercial and industrial use. The Site is now defined as Lots 1, 2, 7, and 8 on the Woburn Tax Assessor's Map 37. This removal site investigation focuses on the rear portion of Lot 7, currently owned by Organix, Inc. Possible tannery-related waste and high levels of chromium in surface soils have been identified in this particular area.

Description of Substances Possibly Present, Known or Alleged:

Solid waste, leather scraps, and soils bearing a bluish-gray material have been observed in and adjacent to a drainage swale in the northern (rear) portion of Lot 7.

Existing Analytical Data

( ) Real-Time Monitoring Data:

(X) Sampling Data: Soil sampling conducted by Weston Solutions, Inc. on June 22, 2004 documented chromium concentrations up to 49,000 mg/kg in surface soils in this area.

Potential Threat

Description of potential hazards to environment and/or population-identify any of the criteria for a Removal Action (from NCP) that may be met by the site under 40 CFR 300.415 [b] [2].

i. Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances, pollutants or contaminants.

REMOVAL PRELIMINARY ASSESSMENT

Potential Threat (Concluded)

iv. High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate.

v. Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released.

vii. The availability of other appropriate federal or state response mechanisms to respond to the release.

Prior Response Activities

(X) PRP **(X) STATE** **( ) FEDERAL** **( ) OTHER**
Brief Description: Site investigation and cleanup activities were conducted under the Massachusetts 21E program when the property was being redeveloped in the 1990s.

Priority for Site Investigation

(X) High **( ) Medium** **( ) Low** **( ) None**
Comments:

Report Generation

Originator: Frank Gardner, On-Scene Coordinator **Date:** February 14, 2006
Affiliation: USEPA Region 1, EPRB **Telephone:** 617-918-1278

II. Site Investigation Form

EPA REGION I
REMOVAL SITE INVESTIGATION

Inspection Information

Site Name: John J Riley Site **Address:** Salem Street
Town: Woburn **County:** Middlesex **State:** Massachusetts
Date of Inspection: August 11, 2005 **Time of Inspection:** 1430-1530 hours
Weather Conditions: 85°F, calm, clear
Site Status at Time of Inspection: **(X) ACTIVE** **( ) INACTIVE**
Comments:

Agencies/Personnel Performing Inspection

(X) EPA: Frank Gardner, On-Scene Coordinator and Joe Lemay, Remedial Project Manager
( ) EPA Contractor:
(X) State: Anna Mayer, Massachusetts Department of Environmental Protection
( ) Other:

Current Owner Based on Field Interview: Organix, Inc.

Physical Site Characteristics

Parameter	Quantities/Extent

( ) Cylinders:
( ) Drums:
( ) Lagoons:
( ) Tanks:
( ) Asbestos:
( ) Piles:
(X) Stained Soil: A bluish-gray layer of soil was observed on the north slope of the drainage swale in the northern (rear) portion of the Site.
( ) Sheens:
( ) Stressed Vegetation:
( ) Landfill:
(X) Population in Vicinity: 9,806 people live within 1 mile, and access to the site is unrestricted. A worn footpath through the drainage swale and discarded beverage containers indicate that unauthorized individuals are accessing the Site.

Physical Site Characteristics (Concluded)

Parameter	Quantities/Extent
( ) Wells: ( ) Drinking:	
( ) Monitoring:	
( ) Other:	

Field Quality Control Procedures

(X) SOP Followed ( ) Deviation From SOP

Description of Sampling Conducted

Three surface (0-3") soil samples were collected and transported to EPA's New England Regional Laboratory (NERL) for analysis.

Analyses

Analytical Parameter	Media	Laboratory
( ) VOC	( ) AIR	(X) NERL
(X) PCB	( ) WATER	( ) CLP
(X) PESTICIDE	(X) SOIL	( ) PRIVATE
(X) METALS	(X) SOURCE	( ) SAS
( ) CYANIDE	( ) SEDIMENT	( ) SOW
( ) SVOC		( ) Field
( ) TOXICITY		
( ) DIOXIN		
( ) ASBESTOS		
( ) OTHER		

Surface Soil Sample Locations and Results

Sample ID	Date	Latitude	Longitude	Total Cr (mg/kg)	Total Pb (mg/kg
jjr-050811-01	8/11/2005	42.49037	71.1342	86000	530
jjr-050811-02	8/11/2005	42.49065	71.13362	2100	260
jjr-050811-03	8/11/2005	42.49037	71.13417	3800	2500

REMOVAL SITE INVESTIGATION

Receptors

Receptor Types **Comments**

( ) Drinking Water **( ) Private:** **( ) Municipal:**

( ) Groundwater:

(X) Unrestricted Access: Access to the Site is unrestricted. A worn footpath through the drainage swale and discarded beverage containers indicate that unauthorized individuals are accessing the Site.

(X) Population in Proximity: 10,256 people live within 1 mile.

( ) Sensitive Ecosystem:

( ) Other:

Site Determination

Depending on further information, criteria that may be met by the site include 40 CFR 300.415 [b] [2], parts:

i. Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances, pollutants or contaminants.

iv. High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate.

v. Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released.

vii. The availability of other appropriate federal or state response mechanisms to respond to the release.

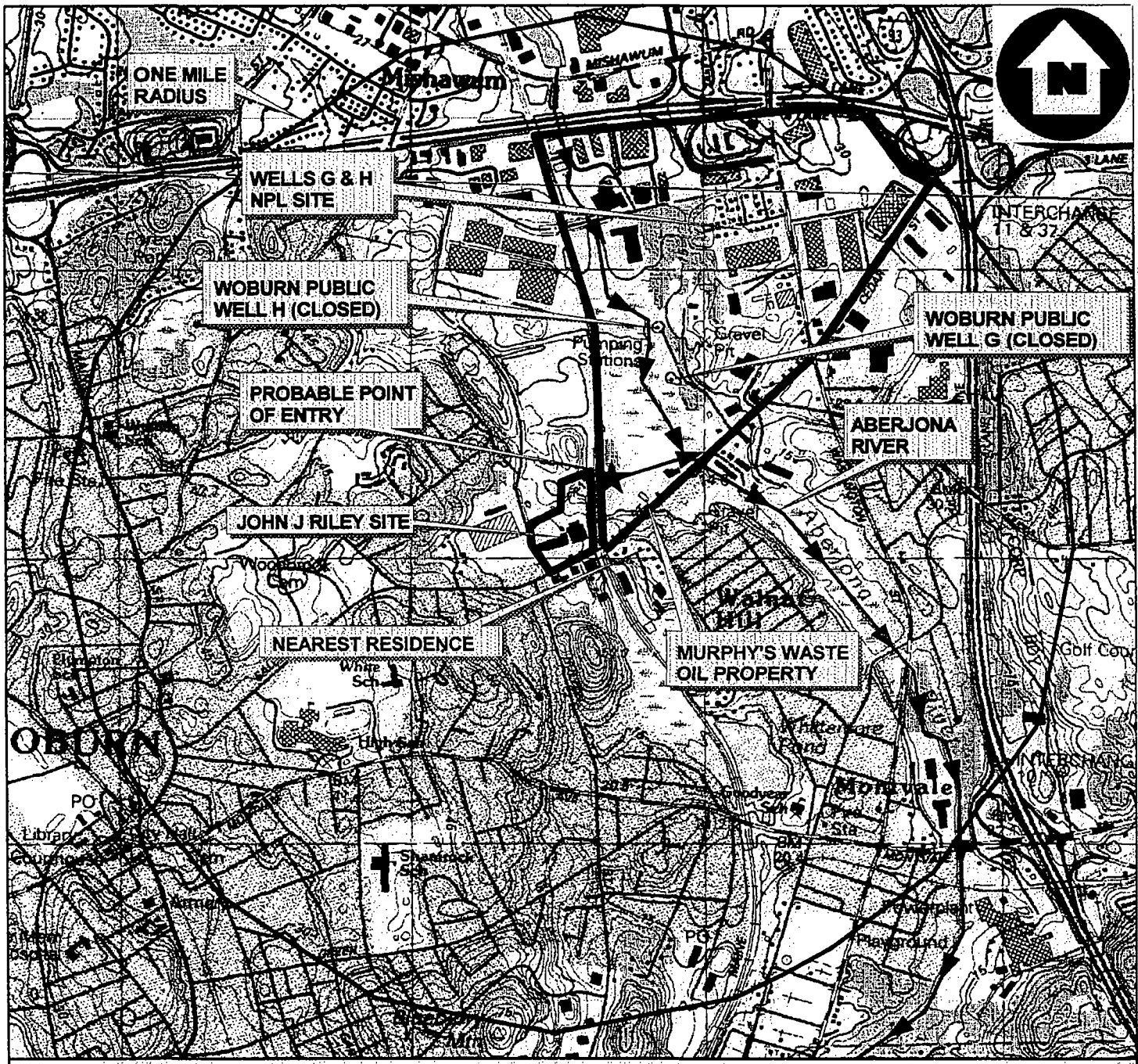
Report Generation

Originator: Frank Gardner, On-Scene Coordinator **Date:** February 21, 2006
Affiliation: USEPA Region 1, EPRB **Telephone:** 617-918-1278

III. Appendices

Appendix A

Figures



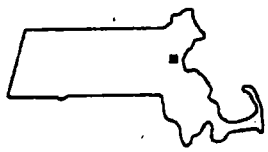
BASE MAP IS A PORTION OF THE FOLLOWING 7.5 X 15 ' U.S.G.S. QUADRANGLE(S):

Boston North, MA Provisional Edition 1985; Reading, MA Provisional Edition 1987

0.2 0 0.2 0.4 0.6 0.8 1 1.2 1.4 Miles

1000 0 1000 2000 3000 4000 5000 6000 7000 Feet

0.5 0 0.5 1 1.5 2 Kilometers



QUADRANGLE LOCATION

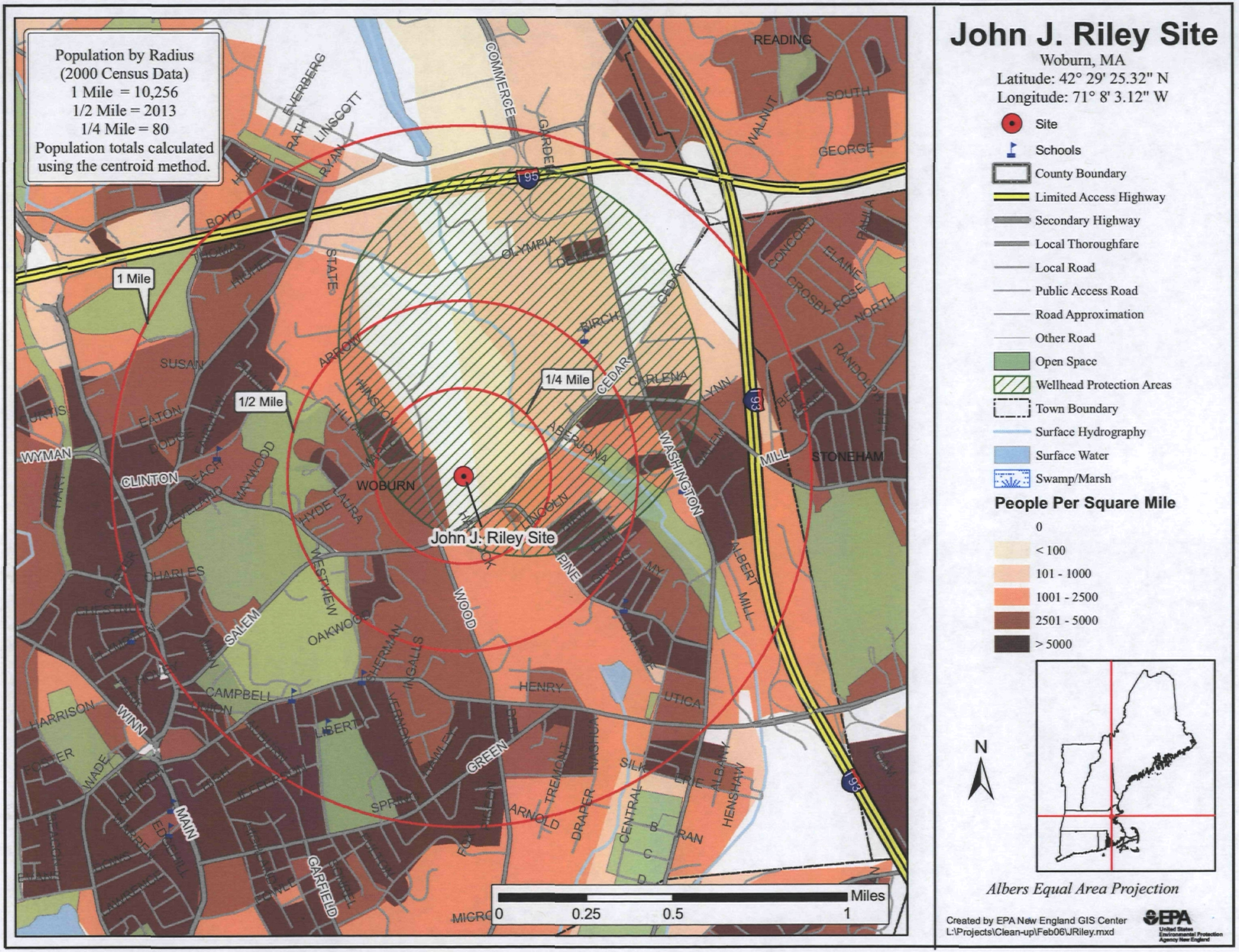
SITE LOCATION MAP

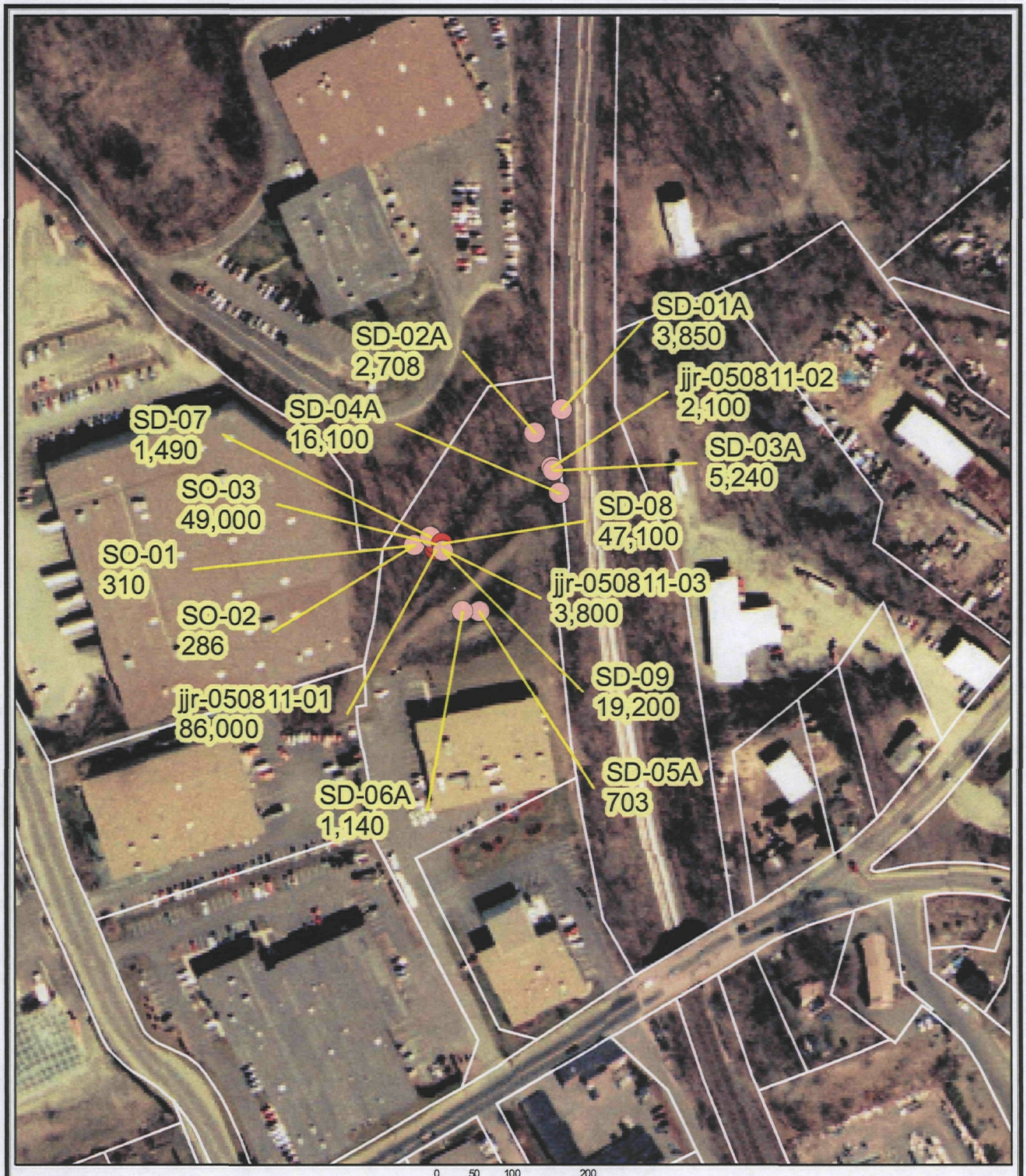
JOHN J RILEY
SALEM STREET
WOBURN, MASSACHUSETTS

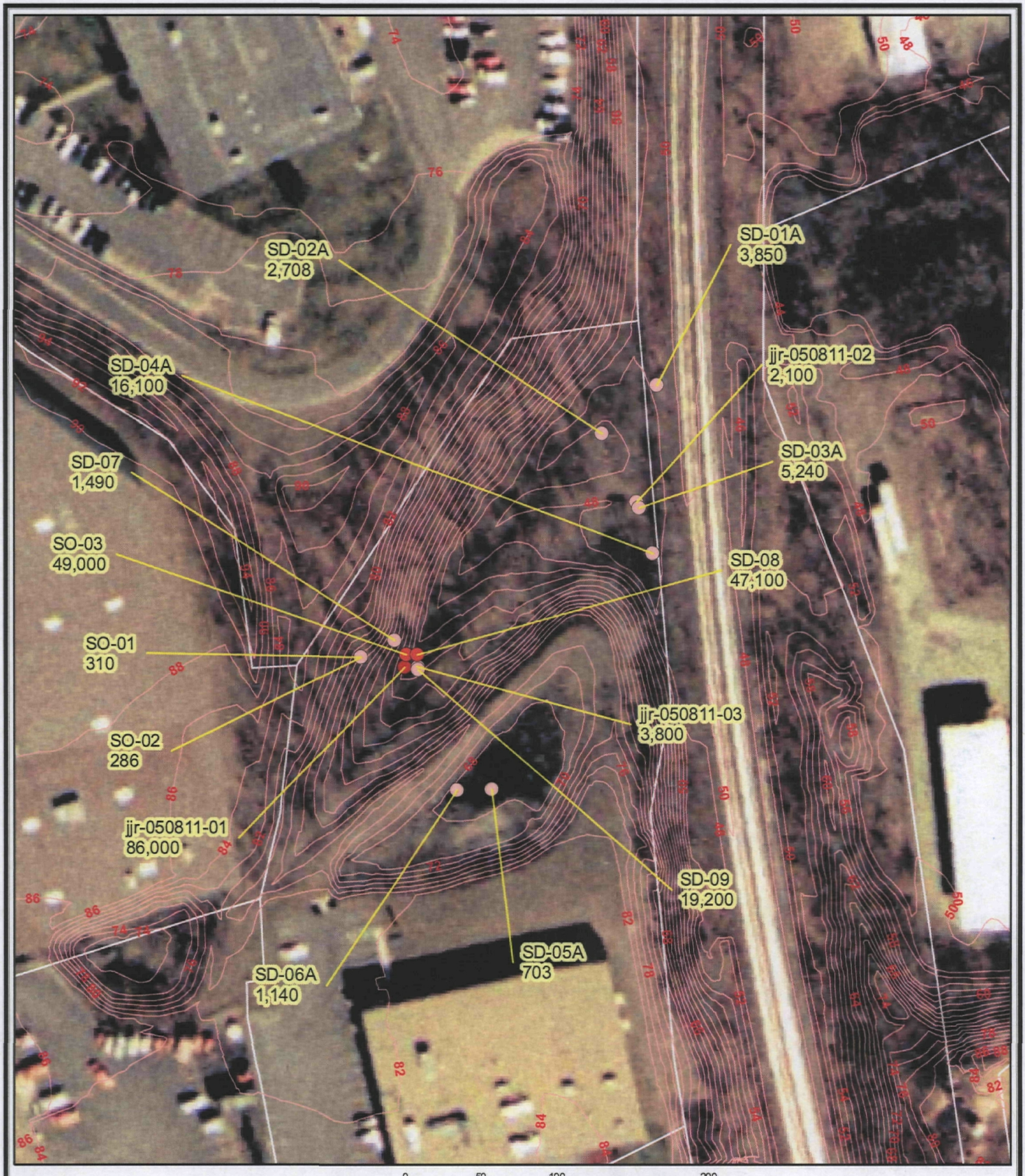
WESTON SOLUTIONS
Restoring Resource Efficiency

REGION I SUPERFUND TECHNICAL ASSESSMENT AND RESPONSE TEAM

TDD #	DRAWN BY:	DATE:
04-05-0149	T. Benton	12/29/2003
FILE NAME: E:\ARC_APRS\START2\JJ Riley.APR		FIGURE 1


Population by Radius
(2000 Census Data)
1 Mile = 10,256
1/2 Mile = 2013
1/4 Mile = 80
Population totals calculated
using the centroid method.
1 Mile
1/2 Mile
1/4 Mile
John J. Riley Site
WOBURN
READING
STONEHAM
I 95
I 93
Miles
0
0.25
0.5
1
John J. Riley Site
Woburn, MA
Latitude: 42° 29' 25.32" N
Longitude: 71° 8' 3.12" W
Site
Schools
County Boundary
Limited Access Highway
Secondary Highway
Local Thoroughfare
Local Road
Public Access Road
Road Approximation
Other Road
Open Space
Wellhead Protection Areas
Town Boundary
Surface Hydrography
Surface Water
Swamp/Marsh
People Per Square Mile
0
< 100
101 - 1000
1001 - 2500
2501 - 5000
> 5000
N
Albers Equal Area Projection
Created by EPA New England GIS Center
L:\Projects\Clean-up\Feb06\JRiley.mxd
EPA
United States Environmental Protection Agency New England


SD-01A
3,850
SD-02A
2,708
jjr-050811-02
2,100
SD-04A
16,100
SD-07
1,490
SD-03A
5,240
SO-03
49,000
SD-08
47,100
SO-01
310
jjr-050811-03
3,800
SO-02
286
SD-09
19,200
jjr-050811-01
86,000
SD-05A
703
SD-06A
1,140
0 50 100 200
Feet
Legend
Chromium Sampling Results (mg/kg)
286 - 22,000
22,000 - 43,000
43,000 - 65,000
65,000 - 86,000
N
W
E
S
John J. Riley Site
Sediment/Soil Sampling Locations
This map created by the EPA New England GIS Center on 14-Dec-2005, updated 15-Feb-2006
L:\projects\emer_resp\sites\John J. Riley\soil_sediment_sampling.mxd
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY



John J. Riley Site
Sediment/Soil Sampling Locations And Elevation

This map created by the EPA New England GIS Center on 16-Feb-2006, updated 27-Feb-2006
L:\projects\emer_resp\sites\John J. Riley\Riley site sampling and contours close-up.mxd

Appendix B

Tables and Spreadsheets

John J Riley Site
Woburn, MA

Surface Soil Sample Locations and Results

Sample ID	Date	Lat. deg	Lat. min	Lat. sec	Long. deg	Long. min	Long. sec	Total Cr (mg/kg)	Total Pb (mg/kg
Soil Samples Collected on August 11, 2005 for Removal Site Investigation									
jjr-050811-01	8/11/2005	42	29	25.32	71	8.000	3.120	86000	530
jjr-050811-02	8/11/2005	42	29	26.34	71	8.000	1.020	2100	260
jjr-050811-03	8/11/2005	42	29	25.32	71	8.000	3.000	3800	2500
Soil Samples Collected on June 22, 2004 for "Expanded Trip Report"									
SO-01	6/22/2004	42	29	25.4	71	8.000	3.500	310	151
SO-02	6/22/2004	42	29	25.4	71	8.000	3.500	286	10.4
SO-03	6/22/2004	42	29	25.4	71	8.000	3.100	49000	637
SD-01A	6/22/2004	42	29	27.1	71	8.000	0.800	3850	317
SD-02A	6/22/2004	42	29	26.8	71	8.000	1.300	2708	220
SD-03A	6/22/2004	42	29	26.3	71	8.000	1.000	5240	235
SD-04A	6/22/2004	42	29	26	71	8.000	0.900	16100	508
SD-05A	6/22/2004	42	29	24.5	71	8.000	2.400	703	52.5
SD-06A	6/22/2004	42	29	24.5	71	8.000	2.700	1140	0.58
SD-07	6/22/2004	42	29	25.5	71	8.000	3.200	1490	3110
SD-08	6/22/2004	42	29	25.4	71	8.000	3.000	47100	254
SD-09	6/22/2004	42	29	25.3	71	8.000	3.000	19200	289

Appendix C

Photodocumentation Log

PHOTOGRAPHY LOG SHEET
John J Riley Site • Woburn, Massachusetts

SCENE: Panorama of swale area and eroding slope. Note worn footpath on right. Photograph taken facing west.

DATE: August 11, 2005
TIME: 1442 hours
PHOTOGRAPHER: Frank Gardner
CAMERA: Canon PowerShot A40

SCENE: View of worn footpath and hole in fence at top of slope. Photograph taken facing northwest.

DATE: August 11, 2005
TIME: 1442 hours
PHOTOGRAPHER: Frank Gardner
CAMERA: Canon PowerShot A40

PHOTOGRAPHY LOG SHEET
John J Riley Site • Woburn, Massachusetts

SCENE: View of leather scrap on face of slope. Photograph taken facing north.

DATE: August 11, 2005
TIME: 1443 hours
PHOTOGRAPHER: Frank Gardner
CAMERA: Canon PowerShot A40

SCENE: View of exposed waste materials on face of slope. Photograph taken facing north.

DATE: August 11, 2005
TIME: 1444 hours
PHOTOGRAPHER: Frank Gardner
CAMERA: Canon PowerShot A40

PHOTOGRAPHY LOG SHEET
John J Riley Site • Woburn, Massachusetts

SCENE: View of bluish-gray waste material on face of slope. Photograph taken facing north.

DATE: August 11, 2005
TIME: 1444 hours
PHOTOGRAPHER: Frank Gardner
CAMERA: Canon PowerShot A40

SCENE: View of leather scraps on face of slope. Photograph taken facing north.

DATE: August 11, 2005
TIME: 1444 hours
PHOTOGRAPHER: Frank Gardner
CAMERA: Canon PowerShot A40

PHOTOGRAPHY LOG SHEET
John J Riley Site • Woburn, Massachusetts

SCENE: View of sample station jjr-050811-01. Photograph taken facing north.

DATE: August 11, 2005
TIME: 1448 hours
PHOTOGRAPHER: Frank Gardner
CAMERA: Canon PowerShot A40

SCENE: View of discarded beverage containers, chair, and worn footpath. Photograph taken facing north.

DATE: August 11, 2005
TIME: 1455 hours
PHOTOGRAPHER: Frank Gardner
CAMERA: Canon PowerShot A40

PHOTOGRAPHY LOG SHEET
John J Riley Site • Woburn, Massachusetts

SCENE: View of sample station jjr-050811-02. Photograph taken facing east.

DATE: August 11, 2005
TIME: 1503 hours
PHOTOGRAPHER: Frank Gardner
CAMERA: Canon PowerShot A40

SCENE: View of leather scraps on face of slope. Photograph taken facing west.

DATE: August 11, 2005
TIME: 1505 hours
PHOTOGRAPHER: Frank Gardner
CAMERA: Canon PowerShot A40

PHOTOGRAPHY LOG SHEET
John J Riley Site • Woburn, Massachusetts

SCENE: View of sample station jjr-050811-03. Photograph taken facing east.

DATE: August 11, 2005
TIME: 1508 hours
PHOTOGRAPHER: Frank Gardner
CAMERA: Canon PowerShot A40

Appendix D

Chain-of-Custody Record

ENVIRONMENTAL PROTECTION AGENCY

REGION 1

CHAIN OF CUSTODY RECORD

PROJ. NO.	PROJECT NAME	NO. OF CONTAINERS	Metals (ICP)	PCB/Pest. (Reg.)	REMARKS
05080027	John J. Riley Site (Woburn, MA)				

SAMPLERS: (Signature)

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	Metals (ICP)	PCB/Pest. (Reg.)	REMARKS
01	8/11/05	1449		X	JJR-050811-01	1	X	X	gray material from steep bank
02	"	1504		X	JJR-050811-02	1	X	X	sediments at bottom of swale
03	"	1508		X	JJR-050811-03	1	X	X	stained soils from footpath (leath.-scraps)

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
	8/11/05 1634				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	
			8/11/05 16:34	Please return results to Frank Gardner (HBR)	

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

1-14811

Appendix E

Analytical Data

EPA
Region 1, New England

United States Environmental Protection Agency
Office of Environmental Measurement & Evaluation
11 Technology Drive
North Chelmsford, MA 01863-2431

Laboratory Report

August 29, 2005

Frank Gardner - HBR
US EPA New England, Region 1
One Congress Street
Boston, MA 02114 - 2023

Project Number: 05080027
Project: John J. Riley - Woburn, MA
Analysis: Metals in Soil Medium Level by ICP
EPA Chemist: Mike Dowling J.P. for M.D. 9/7/05

Analytical Procedure:

All samples were received and logged in by the laboratory according to the USEPA New England Laboratory SOP for Sample Log-in.

Samples were prepared following the EPA Region I SOP, INGMETALSPREP5.SOP.

Samples were analyzed following the EPA Region I SOP, EIASOP-INGICP6.

Samples were analyzed by inductively coupled plasma - atomic emission spectrometry using pneumatic nebulization. Preparation and analysis SOP's are based on "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 3rd Edition, Revision 2, Final Update III, Methods 3050B and 6010B," respectively.

Date Samples Received by the Laboratory: 8/11/05

Results relate only to the items tested or to the samples as received by the Laboratory. This analytical report shall not be reproduced except in full, without written approval of the laboratory.

If you have any questions, please call me at 617-918-8335.

Sincerely,

Nora J. Conlon 9/13/2005

Nora J. Conlon, Ph.D.
Chemistry Laboratory Services Coordinator

Oualifiers:

RL	Reporting limit
ND	Not Detected above reporting limit
NA	Not Applicable
NC	Not calculated since analyte concentration is ND
J1	Estimated value due to MS recovery outside accceptance criteria
J2	Estimated value due to LFB result outside acceptance criteria
J3	Estimated value due to RPD result outside acceptance criteria
J4	Estimated value due to LCS result outside acceptance criteria
J5	Estimated value due to interference check recovery outside accceptance criteria
B	Analyte is associated with the lab blank or trip blank contamination. Values are qualified when the observed concentration of the contamination in the sample extract is less than 10 times the concentration in the blank.
R	No recovery was calculated since the analyte concentration is greater than four times the spike level.

Comments:

The samples were prepared and analyzed by ESAT contractors.

Sample results are in mg/Kg dry wt. units.

US ENVIRONMENTAL PROTECTION AGENCY
NEW ENGLAND LABORATORY

John J. Riley - Woburn, MA

Metals in Soil Medium Level by ICP

Client Sample ID:	JJR-050811-01	Lab Sample ID:	AA52247
Date of Collection:	8/11/2005	Matrix	Soil/Sediment
Date of Digestion:	8/17/05	Final Volume:	50 mL
Date of Analysis:	8/23/05	Digestate Dilution:	1, 20
Volume Digested:	NA	pH:	NA

CAS Number	Parameter	Concentration mg/Kg	RL mg/Kg	Qualifier
7429-90-5	Aluminum	**4400**	21	
7440-36-0	Antimony	ND	210	
7440-38-2	Arsenic	ND	420	
7440-39-3	Barium	**180**	3.2	
7440-41-7	Beryllium	ND	1.1	
7440-43-9	Cadmium	ND	3.2	
7440-70-2	Calcium	**66000**	420	
7440-47-3	Chromium	**86000**	63	
7440-48-4	Cobalt	ND	63	
7440-50-8	Copper	**140**	3.2	J3
7439-89-6	Iron	**26000**	11	J3
7439-92-1	Lead	**530**	210	
7439-95-4	Magnesium	**1700**	420	
7439-96-5	Manganese	**260**	42	
7440-02-0	Nickel	**12**	6.3	
7782-49-2	Selenium	ND	11	
7440-22-4	Silver	ND	3.2	
7440-28-0	Thallium	ND	420	
7440-62-2	Vanadium	ND	63	
7440-66-6	Zinc	**430**	3.2	

Comments: Analytical results for the following elements were taken from the diluted sample: arsenic, calcium, cobalt, chromium, magnesium, manganese, lead, antimony, thallium, and vanadium.

US ENVIRONMENTAL PROTECTION AGENCY
NEW ENGLAND LABORATORY

John J. Riley - Woburn, MA

Metals in Soil Medium Level by ICP

Client Sample ID:	JJR-050811-02	Lab Sample ID:	AA52248
Date of Collection:	8/11/2005	Matrix	Soil/Sediment
Date of Digestion:	8/17/05	Final Volume:	50 mL
Date of Analysis:	8/23/05	Digestate Dilution:	1
Volume Digested:	NA	pH:	NA

CAS Number	Parameter	Concentration mg/Kg	RL mg/Kg	Qualifier
7429-90-5	Aluminum	**15000**	19	
7440-36-0	Antimony	ND	9.7	J1
7440-38-2	Arsenic	ND	19	
7440-39-3	Barium	**210**	2.9	
7440-41-7	Beryllium	ND	0.97	
7440-43-9	Cadmium	ND	2.9	
7440-70-2	Calcium	**4900**	19	
7440-47-3	Chromium	**2100**	2.9	
7440-48-4	Cobalt	**14**	2.9	
7440-50-8	Copper	**98**	2.9	
7439-89-6	Iron	**26000**	9.7	
7439-92-1	Lead	**260**	9.7	J1
7439-95-4	Magnesium	**5700**	19	
7439-96-5	Manganese	**590**	1.9	
7440-02-0	Nickel	**58**	5.8	
7782-49-2	Selenium	ND	9.7	
7440-22-4	Silver	ND	2.9	
7440-28-0	Thallium	ND	53	J1
7440-62-2	Vanadium	**180**	2.9	
7440-66-6	Zinc	**620**	2.9	

Comments: Thallium RL raised due to matrix interference.

US ENVIRONMENTAL PROTECTION AGENCY
NEW ENGLAND LABORATORY

John J. Riley - Woburn, MA

Metals in Soil Medium Level by ICP

Client Sample ID:	JJR-050811-03	Lab Sample ID:	AA52249
Date of Collection:	8/11/2005	Matrix	Soil/Sediment
Date of Digestion:	8/17/05	Final Volume:	50 mL
Date of Analysis:	8/23/05	Digestate Dilution:	1, 20
Volume Digested:	NA	pH:	NA

CAS Number	Parameter	Concentration mg/Kg	RL mg/Kg	Qualifier
7429-90-5	Aluminum	**4600**	19	
7440-36-0	Antimony	ND	190	
7440-38-2	Arsenic	ND	390	
7440-39-3	Barium	**1600**	58	
7440-41-7	Beryllium	ND	19	
7440-43-9	Cadmium	ND	58	
7440-70-2	Calcium	**4300**	19	
7440-47-3	Chromium	**3800**	2.9	
7440-48-4	Cobalt	**30**	2.9	
7440-50-8	Copper	**230**	58	
7439-89-6	Iron	**270000**	190	
7439-92-1	Lead	**2500**	190	
7439-95-4	Magnesium	**1400**	390	
7439-96-5	Manganese	**1700**	39	
7440-02-0	Nickel	**51**	5.8	
7782-49-2	Selenium	ND	190	
7440-22-4	Silver	ND	58	
7440-28-0	Thallium	ND	390	
7440-62-2	Vanadium	ND	58	
7440-66-6	Zinc	**3300**	58	

Comments: Analytical results for the following elements were taken from the undiluted sample:aluminum, calcium, cobalt, chromium, and nickel.

US ENVIRONMENTAL PROTECTION AGENCY
NEW ENGLAND LABORATORY

John J. Riley - Woburn, MA

Laboratory Reagent Blank

Client Sample ID:	N/A	Lab Sample ID:	N/A
Date of Collection:	N/A	Matrix	Water
Date of Digestion:	8/17/05	Final Volume:	50 mL
Date of Analysis:	8/23/05	Digestate Dilution:	1
Volume Digested:	50 mL	pH:	NA

CAS Number	Parameter	Concentration ug/L	RL ug/L	Qualifier
7429-90-5	Aluminum	ND	200	
7440-36-0	Antimony	ND	100	
7440-38-2	Arsenic	ND	200	
7440-39-3	Barium	ND	30	
7440-41-7	Beryllium	ND	10	
7440-43-9	Cadmium	ND	30	
7440-70-2	Calcium	ND	200	
7440-47-3	Chromium	ND	30	
7440-48-4	Cobalt	ND	30	
7440-50-8	Copper	ND	30	
7439-89-6	Iron	ND	100	
7439-92-1	Lead	ND	100	
7439-95-4	Magnesium	ND	200	
7439-96-5	Manganese	ND	20	
7440-02-0	Nickel	ND	60	
7782-49-2	Selenium	ND	100	
7440-22-4	Silver	ND	30	
7440-28-0	Thallium	ND	200	
7440-62-2	Vanadium	ND	30	
7440-66-6	Zinc	ND	30	

Comments:

US ENVIRONMENTAL PROTECTION AGENCY
NEW ENGLAND LABORATORY

METALS MATRIX SPIKE (MS) RESULTS

John J. Riley - Woburn, MA

Sample ID: AA52248

PARAMETER	SPIKE ADDED mg/Kg	SAMPLE CONCENTRATION mg/Kg	MS CONCENTRATION mg/Kg	MS % REC	QC LIMITS (% REC)
Antimony	99	ND	32.1	32	75 - 125
Arsenic	99	ND	104	105	75 - 125
Barium	99	210	292	83	75 - 125
Beryllium	39.6	ND	37.8	96	75 - 125
Cadmium	49.5	ND	44.7	90	75 - 125
Chromium	99	2100	2100	R	75 - 125
Cobalt	99	14	103	90	75 - 125
Copper	99	98	184	87	75 - 125
Lead	99	260	316	57	75 - 125
Manganese	99	590	646	R	75 - 125
Nickel	99	58	139	82	75 - 125
Selenium	99	ND	102	103	75 - 125
Silver	19.8	ND	18.6	94	75 - 125
Thallium	99	ND	58.0	59	75 - 125
Vanadium	99	180	254	75	75 - 125
Zinc	99	620	664	R	75 - 125

Comments:

US ENVIRONMENTAL PROTECTION AGENCY
NEW ENGLAND LABORATORY

Laboratory Duplicate Results

John J. Riley - Woburn, MA

Sample ID: AA52247

PARAMETER	SAMPLE RESULT mg/Kg	SAMPLE DUPLICATE RESULT mg/Kg	PRECISION RPD %	QC LIMITS
Aluminum	4400	4800	9	30
Antimony	ND	ND	NC	30
Arsenic	ND	ND	NC	30
Barium	180	180	0	30
Beryllium	ND	ND	NC	30
Cadmium	ND	ND	NC	30
Calcium	66000	70000	6	30
Chromium	86000	87000	1	30
Cobalt	ND	ND	NC	30
Copper	140	100	33	30
Iron	26000	15000	54	30
Lead	530	520	2	30
Magnesium	1700	2100	21	30
Manganese	260	210	21	30
Nickel	12	10	18	30
Selenium	ND	ND	NC	30
Silver	ND	ND	NC	30
Thallium	ND	ND	NC	30
Vanadium	ND	ND	NC	30
Zinc	430	420	2	30

Comments: Analytical results for the following elements were taken from the diluted sample: arsenic, calcium, cobalt, chromium, magnesium, manganese, lead, antimony, thallium, and vanadium.

US ENVIRONMENTAL PROTECTION AGENCY
NEW ENGLAND LABORATORY

Laboratory Fortified Blank (LFB) Results

John J. Riley - Woburn, MA

PARAMETER	LFB AMOUNT SPIKED ug/L	LFB RESULT ug/L	LFB RECOVERY %	QC LIMITS %
Aluminum	1000	1000	100	85 - 115
Antimony	1000	924	92	85 - 115
Arsenic	1000	975	98	85 - 115
Barium	1000	1060	106	85 - 115
Beryllium	400	388	97	85 - 115
Cadmium	500	445	89	85 - 115
Calcium	10000	9550	96	85 - 115
Chromium	1000	970	97	85 - 115
Cobalt	1000	969	97	85 - 115
Copper	1000	998	100	85 - 115
Iron	1000	970	97	85 - 115
Lead	1000	920	92	85 - 115
Magnesium	10000	9940	99	85 - 115
Manganese	1000	972	97	85 - 115
Nickel	1000	944	94	85 - 115
Selenium	1000	994	99	85 - 115
Silver	200	193	96	85 - 115
Thallium	1000	937	94	85 - 115
Vanadium	1000	979	98	85 - 115
Zinc	1000	934	93	85 - 115

Comments:

Samples in Batch: AA52247, AA52248, AA52249

US ENVIRONMENTAL PROTECTION AGENCY
NEW ENGLAND LABORATORY

Solid Laboratory Control Sample (LCS) Results

John J. Riley - Woburn, MA

PARAMETER	LCS RESULTS mg/Kg	CONTROL LIMITS mg/Kg
Aluminum	6080	3950 - 9710
Antimony	53.9	10.0 - 168
Arsenic	127	108 - 164
Barium	146	112 - 169
Beryllium	66.4	54.8 - 78.8
Cadmium	219	201 - 291
Calcium	3280	2680 - 4180
Chromium	93.8	75.0 - 116
Cobalt	43.3	36.2 - 53.1
Copper	66.2	51.2 - 81.4
Iron	10600	6920 - 17200
Lead	72.8	59.8 - 88.6
Magnesium	1940	1560 - 2520
Manganese	242	197 - 307
Nickel	69.2	59.3 - 86.1
Selenium	83.3	60.7 - 100
Silver	128	77.8 - 176
Thallium	101	90.7 - 149
Vanadium	99.8	80.0 - 134
Zinc	127	107 - 166

Comments:

EPA
Region 1, New England

United States Environmental Protection Agency
Office of Environmental Measurement & Evaluation
11 Technology Drive
North Chelmsford, MA 01863-2431

Laboratory Report

September 12, 2005

Frank Gardner - HBR
US EPA New England, Region 1
One Congress Street
Boston, MA 02114 - 2023

Project Number: 05080027
Project: John J. Riley - Woburn, MA
Analysis: Pesticides and PCBs Medium Level in Soil
Analyst: Paul Carroll 9.12.05

Analytical Procedure:

All samples were received and logged in by the laboratory according to the USEPA New England Laboratory SOP for Sample Log-in.

Sample preparation and analysis was done following the EPA Region I SOP, PESTSOIL2.SOP.

The analysis was performed using high resolution capillary column chromatography on a Hewlett Packard 5890 Series II gas chromatograph equipped with dual electron capture detectors. The 30 meter dual capillary column system consists of a J&W DB-5 and J&W DB-1701, both with 0.25mm ID and 0.25 micron film thickness. The results are reported on a dry weight basis.

Date Samples Received by the Laboratory: 8/11/05

If you have any questions please call me at 617-918-8335 .

Sincerely,
Nora J. Conlon 9/13/2005
Nora Conlon, Ph.D.
Chemistry Laboratory Services Coordinator

Qualifiers: RL = Reporting limit
ND = Not Detected above Reporting limit
NA = Not Applicable due to high sample dilutions or sample interferences
J = Estimated value
E = Estimated value exceeds the calibration range
L = Estimated value is below the calibration range
B = Analyte is associated with the lab blank or trip blank contamination. Values are qualified when the observed concentration of the contamination in the sample extract is less than 10 times the concentration in the blank.
P = The confirmation value exceeded 35% difference and is less than 100%. The lower value is reported.
C = The identification has been confirmed by GC/MS.
A = Suspected Aldol condensation product.
N = Tentatively identified compound.
R = No recovery was calculated since the analyte concentration is greater than four times the spike level.

US ENVIRONMENTAL PROTECTION AGENCY
NEW ENGLAND LABORATORY

John J. Riley - Woburn, MA

Pesticides and PCBs Medium Level in Soil

Client Sample ID:	JJR-050811-01	Lab Sample ID:	AA52247
Date of Collection:	8/11/2005	Matrix	Soil
Date of Extraction:	8/15/05	Final Volume:	5.0 mL
Date of Analysis:	8/20/05	Percent Solids:	78%
Dry Weight Extracted:	4.01 grams	Extract Dilution:	1
Wet Weight Extracted:	5.12 grams	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
72-54-8	4,4'-DDD	ND	6.0	
72-55-9	4,4'-DDE	ND	6.0	
50-29-3	**4,4'-DDT**	**5.5**	**6.0**	**P, L**
309-00-2	Aldrin	ND	6.0	
5103-71-9	Alpha Chlordane	ND	6.0	
319-84-6	Alpha-BHC	ND	6.0	
319-85-7	Beta-BHC	ND	6.0	
319-86-8	Delta-BHC	ND	6.0	
60-57-1	Dieldrin	ND	6.0	
959-98-8	Endosulfan I	ND	6.0	
33212-65-9	Endosulfan II	ND	6.0	
1031-07-8	Endosulfan Sulfate	ND	6.0	
72-20-8	Endrin	ND	6.0	
7421-93-4	Endrin Aldehyde	ND	6.0	
53494-70-5	**Endrin Ketone**	**6.8**	**6.0**	
5103-74-2	Gamma Chlordane	ND	6.0	
58-89-9	Gamma-BHC	ND	6.0	
76-44-8	Heptachlor	ND	6.0	
1024-57-3	Heptachlor Epoxide	ND	6.0	
72-43-5	Methoxychlor	ND	6.0	
12674-11-2	Aroclor-1016	ND	120	
11104-28-2	Aroclor-1221	ND	120	
11141-16-5	Aroclor-1232	ND	120	
53469-21-9	Aroclor-1242	ND	120	
12672-29-6	Aroclor-1248	ND	120	
11097-69-1	Aroclor-1254	ND	120	
11096-82-5	Aroclor-1260	ND	120	
11100-14-4	Aroclor-1262	ND	120	
37324-23-5	Aroclor-1268	ND	120	
57-74-9	Technical Chlordane	ND	120	
8001-35-2	Toxaphene	ND	120	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	91	18 - 130
Decachlorobiphenyl	94	64 - 122

Comments:

US ENVIRONMENTAL PROTECTION AGENCY
NEW ENGLAND LABORATORY

John J. Riley - Woburn, MA

Pesticides and PCBs Medium Level in Soil

Client Sample ID:	JJR-050811-02	Lab Sample ID:	AA52248
Date of Collection:	8/11/2005	Matrix	Sediment
Date of Extraction:	8/15/05	Final Volume:	5.0 mL
Date of Analysis:	8/19/05	Percent Solids:	70%
Dry Weight Extracted:	3.62 grams	Extract Dilution:	1
Wet Weight Extracted:	5.14 grams	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
72-54-8	4,4'-DDD	ND	7.0	
72-55-9	**4,4'-DDE**	**8.2**	**7.0**	
50-29-3	**4,4'-DDT**	**41**	**7.0**	**P**
309-00-2	Aldrin	ND	7.0	
5103-71-9	**Alpha Chlordane**	**28**	**7.0**	
319-84-6	Alpha-BHC	ND	7.0	
319-85-7	Beta-BHC	ND	7.0	
319-86-8	Delta-BHC	ND	7.0	
60-57-1	Dieldrin	ND	7.0	
959-98-8	Endosulfan I	ND	7.0	
33212-65-9	Endosulfan II	ND	7.0	
1031-07-8	Endosulfan Sulfate	ND	7.0	
72-20-8	Endrin	ND	7.0	
7421-93-4	Endrin Aldehyde	ND	7.0	
53494-70-5	**Endrin Ketone**	**9.9**	**7.0**	**P**
5103-74-2	Gamma Chlordane	ND	7.0	
58-89-9	Gamma-BHC	ND	7.0	
76-44-8	Heptachlor	ND	7.0	
1024-57-3	Heptachlor Epoxide	ND	7.0	
72-43-5	Methoxychlor	ND	7.0	
12674-11-2	Aroclor-1016	ND	140	
11104-28-2	Aroclor-1221	ND	140	
11141-16-5	Aroclor-1232	ND	140	
53469-21-9	Aroclor-1242	ND	140	
12672-29-6	Aroclor-1248	ND	140	
11097-69-1	**Aroclor-1254**	**200**	**140**	
11096-82-5	**Aroclor-1260**	**140**	**140**	**L**
11100-14-4	Aroclor-1262	ND	140	
37324-23-5	Aroclor-1268	ND	140	
57-74-9	Technical Chlordane	ND	140	
8001-35-2	Toxaphene	ND	140	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	60	18 - 130
Decachlorobiphenyl	74	64 - 122

Comments:

US ENVIRONMENTAL PROTECTION AGENCY
NEW ENGLAND LABORATORY

John J. Riley - Woburn, MA

Pesticides and PCBs Medium Level in Soil

Client Sample ID:	JJR-050811-03	Lab Sample ID:	AA52249
Date of Collection:	8/11/2005	Matrix	Soil
Date of Extraction:	8/15/05	Final Volume:	5.0 mL
Date of Analysis:	8/20/05	Percent Solids:	75%
Dry Weight Extracted:	3.84 grams	Extract Dilution:	1
Wet Weight Extracted:	5.15 grams	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
72-54-8	4,4'-DDD	ND	6.5	
72-55-9	**4,4'-DDE**	**9.3**	**6.5**	
50-29-3	**4,4'-DDT**	**43**	**6.5**	
309-00-2	Aldrin	ND	6.5	
5103-71-9	Alpha Chlordane	ND	6.5	
319-84-6	Alpha-BHC	ND	6.5	
319-85-7	Beta-BHC	ND	6.5	
319-86-8	Delta-BHC	ND	6.5	
60-57-1	Dieldrin	ND	6.5	
959-98-8	Endosulfan I	ND	6.5	
33212-65-9	Endosulfan II	ND	6.5	
1031-07-8	Endosulfan Sulfate	ND	6.5	
72-20-8	Endrin	ND	6.5	
7421-93-4	Endrin Aldehyde	ND	6.5	
53494-70-5	Endrin Ketone	ND	6.5	
5103-74-2	Gamma Chlordane	ND	6.5	
58-89-9	Gamma-BHC	ND	6.5	
76-44-8	Heptachlor	ND	6.5	
1024-57-3	Heptachlor Epoxide	ND	6.5	
72-43-5	Methoxychlor	ND	6.5	
12674-11-2	Aroclor-1016	ND	130	
11104-28-2	Aroclor-1221	ND	130	
11141-16-5	Aroclor-1232	ND	130	
53469-21-9	Aroclor-1242	ND	130	
12672-29-6	Aroclor-1248	ND	130	
11097-69-1	Aroclor-1254	ND	130	
11096-82-5	Aroclor-1260	ND	130	
11100-14-4	Aroclor-1262	ND	130	
37324-23-5	Aroclor-1268	ND	130	
57-74-9	Technical Chlordane	ND	130	
8001-35-2	Toxaphene	ND	130	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	94	18 - 130
Decachlorobiphenyl	690	64 - 122

Comments: The decachlorobiphenyl surrogate recovery is high. The tetrachloroxylene surrogate recovery is within QC limits.

US ENVIRONMENTAL PROTECTION AGENCY
NEW ENGLAND LABORATORY

John J. Riley - Woburn, MA

Laboratory Blank

Client Sample ID:	N/A	Lab Sample ID:	N/A
Date of Collection:	N/A	Matrix	Soil
Date of Extraction:	8/15/05	Final Volume:	5 mL
Date of Analysis:	8/20/05	Percent Solids:	100%
Dry Weight Extracted:	5.07 grams	Extract Dilution:	1
Wet Weight Extracted:	5.07 grams	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A

CAS Number	Compound	Concentration ug/Kg	RL ug/Kg	Qualifier
72-54-8	4,4'-DDD	ND	5.0	
72-55-9	4,4'-DDE	ND	5.0	
50-29-3	4,4'-DDT	ND	5.0	
309-00-2	Aldrin	ND	5.0	
5103-71-9	Alpha Chlordane	ND	5.0	
319-84-6	Alpha-BHC	ND	5.0	
319-85-7	Beta-BHC	ND	5.0	
319-86-8	Delta-BHC	ND	5.0	
60-57-1	Dieldrin	ND	5.0	
959-98-8	Endosulfan I	ND	5.0	
33212-65-9	Endosulfan II	ND	5.0	
1031-07-8	Endosulfan Sulfate	ND	5.0	
72-20-8	Endrin	ND	5.0	
7421-93-4	Endrin Aldehyde	ND	5.0	
53494-70-5	Endrin Ketone	ND	5.0	
5103-74-2	Gamma Chlordane	ND	5.0	
58-89-9	Gamma-BHC	ND	5.0	
76-44-8	Heptachlor	ND	5.0	
1024-57-3	Heptachlor Epoxide	ND	5.0	
72-43-5	Methoxychlor	ND	5.0	
12674-11-2	Aroclor-1016	ND	100	
11104-28-2	Aroclor-1221	ND	100	
11141-16-5	Aroclor-1232	ND	100	
53469-21-9	Aroclor-1242	ND	100	
12672-29-6	Aroclor-1248	ND	100	
11097-69-1	Aroclor-1254	ND	100	
11096-82-5	Aroclor-1260	ND	100	
11100-14-4	Aroclor-1262	ND	100	
37324-23-5	Aroclor-1268	ND	100	
57-74-9	Technical Chlordane	ND	100	
8001-35-2	Toxaphene	ND	100	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	81	18 - 130
Decachlorobiphenyl	126	64 - 122

Comments: The decachlorobiphenyl (DCB) surrogate recovery is high. Surrogate recovery for tetrachloroxylene (TCX) is within QC limits.

US ENVIRONMENTAL PROTECTION AGENCY
NEW ENGLAND LABORATORY

PESTICIDES MATRIX SPIKE (MS) / MATRIX SPIKE DUPLICATE (MSD) RECOVERY

John J. Riley - Woburn, MA

Sample ID: AA52248

PARAMETER	SPIKE ADDED ug/Kg	SAMPLE CONCENTRATION ug/Kg	MS CONCENTRATION ug/Kg	MS % REC	QC LIMITS (% REC)
4,4'-DDD	55	ND	68	123	70 - 130
4,4'-DDE	55	8.2	62	98	70 - 130
4,4'-DDT	55	41	125	153	34 - 166
Aldrin	55	ND	53	96	36 - 119
Alpha Chlordane	55	28	84	102	70 - 130
Alpha-BHC	55	ND	61	111	70 - 130
Aroclor-1016	0	ND	ND	0	70 - 130
Aroclor-1254	0	200	ND	0	70 - 130
Aroclor-1260	0	140	ND	0	70 - 130
Beta-BHC	55	ND	61	111	70 - 130
Delta-BHC	55	ND	62	113	70 - 130
Dieldrin	55	ND	63	114	39 - 155
Endosulfan I	55	ND	56	102	70 - 130
Endosulfan II	55	ND	57	103	70 - 130
Endosulfan Sulfate	55	ND	58	105	70 - 130
Endrin	55	ND	62	113	52 - 139
Endrin Aldehyde	55	ND	49	89	70 - 130
Endrin Ketone	55	9.9	71	111	70 - 130
Gamma Chlordane	55	ND	73	133	70 - 130
Gamma-BHC	55	ND	65	118	34 - 137
Heptachlor	55	ND	54	98	47 - 143
Heptachlor Epoxide	55	ND	60	109	70 - 130
Methoxychlor	55	ND	76	138	70 - 130
Technical Chlordane	0	ND	ND	0	70 - 130
Toxaphene	0	ND	ND	0	70 - 130

Comments: Matrix spike recoveries for Gamma Chlordane and Methoxychlor exceed QC limits.

PARAMETER	MSD SPIKE ADDED	MSD CONCENTRATION ug/Kg	MSD % REC	RPD %	QC LIMITS RPD
4,4'-DDD	56	83	149	19	
4,4'-DDE	56	64	100	2	
4,4'-DDT	56	138	174	13	50
Aldrin	56	56	100	4	43
Alpha Chlordane	56	88	107	6	
Alpha-BHC	56	65	116	5	
Beta-BHC	56	67	120	8	
Delta-BHC	56	67	120	6	
Dieldrin	56	71	127	11	38
Endosulfan I	56	61	109	7	
Endosulfan II	56	63	113	9	
Endosulfan Sulfate	56	65	116	10	
Endrin	56	68	122	8	45
Endrin Aldehyde	56	33	59	40	
Endrin Ketone	56	61	91	19	
Gamma Chlordane	56	78	140	5	
Gamma-BHC	56	69	123	5	50
Heptachlor	56	56	100	2	31
Heptachlor Epoxide	56	66	118	8	
Methoxychlor	56	81	145	5	

Comments:

Samples in Batch: AA52247, AA52248, AA52249

US ENVIRONMENTAL PROTECTION AGENCY
NEW ENGLAND LABORATORY

Laboratory Duplicate Results

John J. Riley - Woburn, MA

Sample ID: AA52248

PARAMETER	SAMPLE RESULT ug/Kg	SAMPLE DUPLICATE RESULT ug/Kg	PRECISION RPD %	QC LIMITS
4,4'-DDD	ND	ND	ND	50
4,4'-DDE	8.2	10	19.8	50
4,4'-DDT	41	42	2.4	50
Aldrin	ND	ND	ND	50
Alpha Chlordane	28	29	3.5	50
Alpha-BHC	ND	ND	ND	50
Aroclor-1016	ND	ND	ND	50
Aroclor-1221	ND	ND	ND	50
Aroclor-1232	ND	ND	ND	50
Aroclor-1242	ND	ND	ND	50
Aroclor-1248	ND	ND	ND	50
Aroclor-1254	200	260	26	50
Aroclor-1260	140	170	19	50
Aroclor-1262	ND	ND	ND	50
Aroclor-1268	ND	ND	ND	50
Beta-BHC	ND	ND	ND	50
Delta-BHC	ND	ND	ND	50
Dieldrin	ND	ND	ND	50
Endosulfan I	ND	ND	ND	50
Endosulfan II	ND	ND	ND	50
Endosulfan Sulfate	ND	ND	ND	50
Endrin	ND	ND	ND	50
Endrin Aldehyde	ND	ND	ND	50
Endrin Ketone	9.9	11	10.5	50
Gamma Chlordane	ND	ND	ND	50
Gamma-BHC	ND	ND	ND	50
Heptachlor	ND	ND	ND	50
Heptachlor Epoxide	ND	ND	ND	50
Methoxychlor	ND	ND	ND	50
Technical Chlordane	ND	ND	ND	50
Toxaphene	ND	ND	ND	50